Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

MOBILE TRAILER SYSTEM PERMITS MISSILE FIRING IN A SAFE CONTROL AREA FOR SENSOR RESEARCH

The ability of Sensors Directorate engineers to control a missile's flight via a cable improves the research potential to investigate the sensor's ability to detect missiles in a high-clutter, urban environment. This cable apparatus is a low-cost solution; however, at the same time, it provides high returns in research capability.

Air Force Research Laboratory
Wright-Patterson AFB OH

Accomplishment

Directorate engineers demonstrated an innovative mobile trailer system, which allows them to fire missiles in a safe, controlled area for sensor research. This improves the research scientists' ability to test and evaluate sensor systems against missile threats.

Background

Directorate engineers have used smokey surface-to-air missile (SAM) training rockets during testing for several years, primarily as a low-cost simulator for missile-warning sensor testing in both static firings and free flight launches. The large cleared area required for free flight tests limited the sites available to accomplish this testing mainly to expensive test ranges.

Open test ranges are also usually low-clutter environments. However, to thoroughly test the missile-warning sensor's capability, scientists need to examine how the sensor picks out missiles in a high-clutter, urban-type environment.

Directorate scientists determined that by launching a smokey SAM along a cable, they could control the flight and reduce the safety footprint. They further examined ways to assemble the apparatus onto a mobile trailer with a telescoping tower where it could be transported, set up, and fired in any high-clutter urban environment.

Directorate engineers recently demonstrated this concept at Wright-Patterson Air Force Base, Ohio. They used a crane to raise the cable to about 70 ft, with the other end of the 1/8 in., 2,000 ft aircraft cable attached to a pickup truck. The engineers drove the anchor truck forward to pull tension on the cable until the cable was a sufficient height off the ground. The rockets traveled 1,500 to 1,800 ft.

Sensors
Emerging Technologies

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-SN-11)